

here and there of the forest negro. There has also been an obvious intermixture of blood between the eastern Hottentots and the incoming Bantu, and some of the pictures of Hottentot boys are singularly reminiscent of the Nyanja populations of western and southern Nyasaland, regions that certainly once possessed a Hottentot or Bushman population. The extraordinary steatopygy developed by the Hottentot women, and occasionally the men, to a degree not met with in any other part of Africa (though by no means unknown among Nilotic or Sudanese negroes, and apparently characteristic of a primitive negroid population of Egypt and the Mediterranean basin) is also illustrated by photographs and verbal description.

What strikes one markedly in the Bushman types and some of the Hottentots is the superficial resemblance they bear in features to the peasant population of parts of central Europe, eastern France, and—if one may dare to say so—some parts of Ireland.¹ It is quite possible that the Bushman type of negro once ranged from central and western Europe, across the Mediterranean, and down the east side of Africa to his present habitat. It is curious that these types do not recall any reminiscences of the Congo pygmy or the West African negro. One is only able to match them in the eastern Sudan and in Europe. The author directs attention to the fact that the Bushmen and Hottentots, where they are uninfluenced by the Bantu, do not practise circumcision.

They are scarcely in an age of stone; indeed, Dr. Schultze does not seem to record the use of any stone implements. But they are living in an age of bone, wood, and skins. The arrow-heads of the Bushmen are usually made of bone. So are many other implements of Bushman and Hottentot. Wood and leather, gourds, thorns, and sticks are the materials out of which utensils, ornaments, and receptacles are made.

Among the many aspects of the life of these primitive peoples so completely illustrated in this work are the domestic animals—sheep, goats, and cattle. The dog no doubt migrated south with the Bushman and Hottentot, after a previous sojourn in the Mediterranean basin. But obviously, the goat first, then the ox and the sheep, were brought to them from the north by Bantu or Nilotic negroes. The Hottentot root word to express cattle (*goma-*) is probably derived from the southern Bantu *-komo*, and *biri-*, for goat, may be the early Bantu *buri*, *budi*. Even the vocable for sheep, *gu-*, can be traced to a Bantu source.

The cattle of these regions, whether belonging to Hottentot or Bantu peoples, are apparently a mixture between breeds introduced two and three hundred years ago by the Portuguese and the Dutch and the two more or less indigenous breeds of Central Africa, that is to say, the humped ox (*Bos indicus*) and the Gala or Egyptian ox (*Bos aegyptiacus*), with its enormous horns. Nowhere amongst the herds of any of the southern Bantu or of the Hottentot does one meet with the typical African ox that formerly ranged from Egypt across the Sudan to Senegambia, and which has penetrated to the mountain regions of the

Nile and Congo basins. In this ox of pure breed the horn cores are never set horizontally and curved forward over the face; they grow out at right angles from the frontal line, and then upwards and backwards. It is evident that the cattle introduced from western and northern Europe considerably modified the stock of the South and South-West African breeds.

The Hottentot language is profoundly studied in the volume under review. There is a vast deal of information about folklore, rainfall, and temperatures, lists of plants, the musical notation of Hottentot songs, chemical analyses of Hottentot medicines, and a bibliography.

If this is the way in which Germany is going to illustrate her colonies, the world of science would gladly install her in possession of all the backward and little-known regions of the world.

H. H. JOHNSTON.

ALCOHOL AND ITS EFFECTS.

Alcohol and the Human Body. By Sir Victor Horsley, F.R.S., and Dr. Mary D. Sturge, with a Chapter by Dr. Arthur Newsholme. Pp. xvi + 370. (London: Macmillan and Co., Ltd., 1907.) Price 5s. net.

THE importance of the alcohol question to the well-being of the race can scarcely be exaggerated, and in many respects this book will be very useful, but it is questionable whether the authors do not go too far in ascribing to alcohol ill effects only and no useful properties. The book, in fact, is a partisan one, and any evidence favourable to alcohol has been completely suppressed.

In the first chapter the action of alcohol as a drug is considered, and it is shown how the use of alcohol has declined in hospitals. The chemistry of alcoholic beverages is then briefly discussed. The effects of alcohol on protoplasm, on the various tissues of the body, and on mental and physical work, are subsequently described in language which can be understood by all, technical terms being avoided, and in the final chapter Dr. Newsholme discusses statistically the influence of the drinking of alcoholic beverages on the national health and wealth.

In venturing to make some criticisms on the book as a whole, we would remark that we are in complete sympathy with the object of the authors, which is, we take it, to emphasise the disastrous consequences which may result from indulgence in alcohol.

The first criticism we would offer is that no distinction is made between alcohol and alcoholic beverages. It may be true that alcohol, as alcohol, does not possess all the virtues and properties which are so often attributed to it; but surely there is a consensus of opinion that the moderate use of good, well-matured spirit or wine is frequently beneficial in some disease conditions, and many of the ills attributed to alcohol may well be due to the by-products present in cheap beverages. Alcohol has been shown to occur in small quantities in the tissues; it is a result of normal metabolism; and we therefore question whether the moderate use of alcoholic beverages does any harm. The difficulty is, of course,

¹ Anthropologists hardly need to be reminded that Ireland contains at least half-a-dozen distinct anthropological types, ranging from the hand-somest to the ugliest of European peoples.

to define what is meant by "moderate use"; probably a quantity of a beverage equivalent to 1 to $1\frac{1}{2}$ fluid ounces of absolute alcohol is as much as can safely be consumed *per diem*. If this be admitted it must be confessed that a large proportion of so-called moderate drinkers exceed the mark; the man who takes four or five whiskies a day is probably consuming 2 to 3 ounces of absolute alcohol *per diem*, and is therefore exceeding what may be considered to be a safe limit. The experiments quoted, in which even weak solutions of alcohol are shown to be protoplasmic poisons, are hardly convincing as to the deleterious action of alcohol on the organism as a whole, for are not distilled water, 3 per cent. salt solution, and beef-tea similarly protoplasmic poisons? A good deal is made of the supposed disastrous effects of alcohol on the nervous system, and it is stated that alcohol is accountable for 20 per cent. of the cases under care in our asylums. Dr. Mott,¹ however, says—and he has made the subject one of special study—that "alcohol does not *per se* produce a permanent mental derangement, such as constitutes our definition of insanity," and he points out that in an American inquiry into the subject, total abstinence was found to be more frequently an antecedent of insanity than was intemperance. These quotations show how difficult it is to associate cause and effect.

Dr. Newsholme deduces from the statistics of the consumption of alcoholic drinks in 1904 that each adult of the working class spends 2s. 2½d. a week on alcoholic beverages; and, assuming that each family spends 5s. a week, this, if placed as an insurance premium, commencing at the age of 25, would mean that the husband would have saved the sum of 422l. at the age of 55, which, invested as an annuity, would yield 12s. 6d. a week. These are certainly figures of grave import, and we would commend them to the politicians, for here surely is the basis for a scheme of old age pensions!

We doubt, however, if there would actually be anything like this saving, for a majority would certainly spend the money on substitutes for alcoholic beverages—tea, coffee, cocoa, milk, and temperance drinks—on better food and clothing, and on amusements, and the actual gain would principally be in the well-being of the people. Finally, incidence of sickness and the percentage death rate among abstainers and non-abstainers is contrasted; among the former the death rate is 3·557, among the latter 6·532. Dr. Newsholme remarks:—"We are compelled to conclude that what is commonly described as moderate drinking has a most injurious effect on health and life." We feel convinced that the whole story is not told by these figures. No doubt many drunkards were included among the moderate drinkers (as Dr. Newsholme suggests), and probably a large proportion were not moderate drinkers according to our definition; and may it not be that a considerable proportion of naturally delicate persons, persons whose stamina is poor and who suffer from various ailments and tend to die young, are moderate drinkers, while the

abstainers include a large proportion of robust individuals who do not feel the need for any alcohol?

On the other hand, a number of so-called abstainers are certainly really moderate drinkers, for many temperance drinks contain some alcohol. Thus, in the year ending March 31, 1907, of 1133 samples of beverages sold as temperance drinks examined in the Government Laboratory, 71 contained 3 per cent. of proof spirit, 37 contained 4 per cent., and 8 contained 6 per cent. or more. Herb beer and dandelion stout contained respectively 10·5 per cent. and 12·3 per cent. of proof spirit. That is to say, 10 per cent. of temperance drinks contain nearly as much alcohol as a mild ale!

The book is well got up, and contains a number of coloured and black-and-white illustrations and diagrams.

VAN DER WAALS AND HIS SUCCESSORS.

Die Zustandsgleichung der Gase und Flüssigkeiten und die Continuitätstheorie. By Prof. J. P. Kuenen. Pp. x+241. (Brunswick: F. Vieweg und Sohn, 1907.) Price 6.50 marks.

PROF. KUENEN'S monograph will be welcomed by a large circle of readers who have felt the fascination of van der Waals's equation in its simple but marvellous exposition of the critical phenomena, and who desire to become acquainted with the results of recent investigations in this important field of work.

As the author is able to show in his first four chapters, the equation of state affords a complete qualitative explanation of the behaviour of gases under varying conditions of temperature and pressure, including those which cause liquefaction. The whole description is admirably clear, but it may be permitted to direct special attention to three points which are not usually discussed; these are (1) the demonstration of the way in which the labile equilibrium (in which pressure and volume increase together) must collapse in such a way as to give rise to two layers of different density (p. 24); (2) the fact that in the metastable region the *p**v* curves for low temperatures intersect and cross the axis of volume, corresponding with the experimental observations of Helmholtz and others that liquids may exist under considerable negative pressures without vaporisation (p. 28); and (3) the fact that the liquid in a capillary tube out of contact from air is under a pressure less than the normal vapour pressure, and is therefore metastable, and might even become labile if the capillary height were sufficiently great.

In spite of its wonderful qualitative accuracy, van der Waals's equation almost invariably breaks down when accurate quantitative tests are applied (chapters vi. to ix.). Thus, if the values of the critical constants are filled in, the expression RT/PV should have the value $8/3=2·67$ for all gas; actually argon appears to give a normal value, and hydrogen the value 2·94, but a group of eighteen hydrocarbons and simple derivatives gave values ranging from 3·4 to 3·9 (p. 60), whilst polymerised liquids gave values between 4 and 5. Similar results are observed in reference to the

¹ *British Medical Journal*, 1907, ii., p. 797.